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ABSTRACT

Presented by the originator of the project, this speech addresses Reading Recovery as a prevention model to reduce literacy problems, as a model of what an early intervention strategy based on grounded theory looks like, and as a breakthrough in a conceptual barrier pointing to what is possible. Sections of the speech include: (1) "Who Needs a Reading Recovery Program?"; (2) "Reading Recovery in New Zealand, 1984-1988: National Implementation"; (3) "What Is Possible?: A Grounded Approach to Theory and Practice"; (4) "What Was Possible in Ohio?"; and (5) "Some Challenges for Further Research." The speech argues that the name "Reading Recovery" is misleading: what most people miss is that it is a literacy program to be evaluated as overcoming problems in both reading and writing. (Two tables of data are included; 33 references are attached.) (RS)

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READING RECOVERY IN THE UNITED STATES:
IT S SUCCESSES AND CHALLENGES

by

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Invited Address to AERA Annual Meeting, Boston, April 1990
Division C; SIG/Basic Research in Reading

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READING RECOVERY IN THE UNITED STATES: ITS SUCCESSES AND CHALLENGES

Marie M. Clay
University of Auckland, New Zealand

Invited Address to AERA Annual Meeting, Boston, April 1990
Division C; SIG/Basic Research in Reading

I want to talk about Reading Recovery

- firstly, as a prevention model, an intervention directed to an education system to reduce literacy problems;
- secondly, as a model of what an early intervention strategy based on grounded theory looks like;
- and thirdly, as a breakthrough in a conceptual barrier (a little Berlin wall) pointing to what is possible.

I will refer to existing research and point up future challenges. I will not discuss Reading Recovery as procedures to be used by a teacher, nor as an educational program vying with alternative programs, and I do not see it as a means of evaluating literacy learning theories. However, I will constantly remind you that this program's name is misleading: what most people miss is that it is a literacy program to be evaluated as overcoming problems in **both reading and writing**.

To achieve an effective implementation of Reading Recover in an education system we have tried to give teachers and administrators evidence about the program which communicates to them. This is why the guidebook for Reading Recovery teachers (Clay, 1985) contains research reports of New Zealand studies written to be read by educators rather than researchers. Shanahan (1987) reviewed the last edition of that guidebook and concluded that the New Zealand research was designed in such a way that it is impossible to know whether or not the program worked. There is good evidence of various kinds that it works, but I concede that there is not yet strong evidence in terms of typical scientific criteria of experimental design. In neither New Zealand nor Australia has the randomized experimental/control group study been done, and for good reasons. It would not have produced the evidence required to convince administrators of what the program could achieve. A longitudinal control group study was completed in the Ohio State program. An independent National Evaluation Panel in Ohio recommended that a comprehensive, controlled study of Reading Recovery be undertaken but to my knowledge that study has not

yet been funded. I contend that an effective research implementation and I will return to this issue at the end of my paper.

The Reading Recovery program is a vehicle or tool for delivering different programs to different children. When it is used changes in individual performance can be predicted and achieved. Replication of the changes in many children, with different ethnic groups, by many teachers, in varied settings, different education systems, and in different countries has occurred and is evidence that administrators can work with. We have considerable control over some of the variables, because we can predict changes both at the individual level and at the system level from variations in the teaching, or training or characteristics of the children, and we put these to the test in each new implementation.

It is difficult to talk in any precise way about what explains the progress of the children in this complex enterprise. Why these changes occur could be related to **many** theoretical questions implicit in at least the **three** components of this early intervention:

- 1) what the children learn,
- 2) how the teachers teach,
- 3) and how the program is delivered.

We might generate several sets of variables from those components to explain such changes, each of us working from our preferred theories. We could even hypothesize that it is the total set of variables working in concert that is important, although there is sure to be some noise in the system somewhere.

An important question is this. By what research process was this predictability and control achieved? The antecedent step, and I think the achievement of Reading Recovery, has been to demonstrate that the world might be different; a consequent step may be to search for causes.

Who Needs A Reading Recovery Program?

The report of a National Evaluation Panel commissioned to report to the Ohio State Department of Education, June 1988 answers that question for USA.

'Reading Recovery is a program to assist first grade children at-risk for reading failure. When children do not learn to read by the end of the first grade, a depressingly large percentage go on to fail in later grades and, often, in every area of the curriculum. These children are the candidates for retention and special education. They suffer from poor self-esteem. They are likely to become apathetic, or troublemakers, or dropouts. Most other remedies for failing readers are expensive but, on the whole, are not very effective....As adapted for use in Ohio, Reading Recovery provides a second chance for children who are failing to learn to read in the first grade. Children who fall into the lowest 20% in reading within a class are provided one-on-one 30 minute lessons every day by a teacher trained in

Reading Recovery...The program continues until children are judged to have acquired strategies for successful independent reading and are judged to be able to make normal progress in the classrooms in which they are enrolled without extra help from the regular teacher. Then the intervention is 'discontinued' and the slots in the Reading Recovery teacher's schedule are filled with other first grade children who are reading poorly in comparison with their classmates.'

The Reading Recovery program in New Zealand fits into early childhood education in this way. Children are offered

- rich preschool experiences,
- a sound classroom program in the first year of school,
- and, if need be, a second chance to succeed in Reading Recovery once it can be established reliably that such extra help is needed.

A program was developed for the lowest achievers who had not responded to good quality first year instruction (Clay, 1979).

There are therefore two different problems for an education system to solve; first, how to deliver good first instruction in literacy, and second, what kind of supplementary opportunity of an intensive kind to provide for individuals who are low-achieving as a result of their interactions with their first formal instruction program. Beginning instruction cannot be all things to all children, and because of this I am convinced that a second opportunity program should be available to children with unsatisfactory learning histories in the first year of school. It is becoming apparent that that is a time when we are able to make a difference.

The program does not select children by category or cause of the problem but only on current achievement, or literacy progress to date. A child who needs Reading Recovery is one who has found it hard to develop effective processing for reading, or for writing, in his/her school program, for whatever reason. The aspects of the complex learning that are most troublesome will vary from child to child. This is one reason why no classroom program in the first year of instruction will be adequate for all children: those who fail have problem diagnoses which differ one from another. It is also why each second chance teaching program should be individually designed for each child, in my opinion.

Using medical models of prevention as a guide, I take it as a given that one treats a population or critical subgroup before the onset of a serious condition in order to reduce the incidence of the problem. The main criterion of success is the incidence of those who are problem-free at some later check-point. It is a given that this includes treating some who would not have developed the problem so that one reduces the chance of missing some who would.

Reading Recovery in New Zealand, 1984-1988: National Implementation

Recent New Zealand survey data illustrates what I mean by 'demonstrating how the world might be different.'

In the 1960's my longitudinal research studies described change over time in successful and unsuccessful readers from entry to school on their fifth birthday through their first two years of school.

Reading Recovery developed in 1976-77 from a set of questions about low progress children. Could we do better by them? Field trials by 1978 in five schools produced two big surprises.

- Firstly, teachers in five schools of very different population characteristics produced similar results, and tail-enders in the achievement distribution were returned to average band performance in only 12 to 15 weeks of 30 minute individual instruction every day.
- Secondly, administrators were able to 'read' that progress in the daily lesson records of individual children; they could monitor the changes formatively in a subjective way. They could see that the achievement trajectories of discontinued children changes from slow, to rapid and back to average rates of progress. This was clearly evident in the rate at which children moved up through a gradient of difficulty in texts used by their classmates.

I was surprised but skeptical. As a clinician I knew how desperately difficult it is to change the trajectory of very low progress. We continued to explore but I search for flaws in the evidence.

Within a month of the completion of the field trials, the development took another turn. The Director-General of Education asked for a seminar for all his Directors. He said, 'We wish to spend a day with you discussing the possible implications of this intervention. We do not need to discuss the research to date; we have seen the report of changes achieved and we want to talk through what it could mean for the education system.' **That request redefined the purposes of Reading Recovery;** it remains a clinical-type intervention for reducing the incidence of problems at the level of individuals but following that seminar it also became an intervention adopted by an education system to improve performance in its schools. People accepted for training in New Zealand must be backed by an education system which intends to trial an early intervention strategy. The program is not seen as something an individual teacher uses or a single school implements.

With policy support Reading Recovery went through three years of development and four years of researched trials (Clay, 1985) in various parts of my country (1976-1983). In the 1984 school year it reached over 3000 children, and despite a change of Government the

expansion continued. Annual returns are now available for 1984-1988 from each of ten Education Board districts, providing survey data on national implementation.

Tables 1 and 2 about here

1. Table 1, Column 2 shows the numbers and percentages of children in the birth cohort. Column 3 shows changes between 1984 and 1988 in numbers of children entering Reading Recovery consistent with the policy to expand the program and its infrastructure for training and support, to reach 15-20% of the age cohort. How many children are reached is determined only by the allocation of resources and not by achievement levels or cut-off criteria.

2. A child is in the program for the minimum time necessary to bring that child to average band performance for his class. Children leave the program at any time, and new children enter in their places. Time in the program is not fixed and cannot be fitted neatly into the school year. When you use time in this economical way you have a group who enter late in the year and need to continue an incomplete treatment in the next school year. If you do not take these children in and carry them over you are reducing the efficiency of the program.

While researchers would much prefer a standard time in program making for neater research designs, New Zealand administrators allow it to reflect the real world, and accept the complications of the left-over population at the end of the school year, in the interest of program efficiency. [As far as I can tell in USA the evaluation demands of the administrators are adjusting the program to the needs of research.] This is one conflict of interest between real world factors and research design in Reading Recovery; there are many more of these.

Each teaching place in the NZ program allows for about two and a half children to enter per calendar year, about two-thirds of the annual intake are discontinued and one third of the children must be expected to enter the program late in the year and continue treatment in the following year (Columns 4 and 5).

3. The percentage of children leaving the school (Column 6) occurs through mobility of families, and while every effort is made to include children in a Reading Recovery program in their new schools, no data has been collected on this group.

An arbitrary limit to time in program of 20 weeks is recommended to schools in New Zealand, since the average time needed in most programs in any country has been about 12 to 15 weeks. [In parenthesis, evidence from my current research suggests that schools have often extended this time beyond the recommended limit.] Schools are then encouraged to refer any child who has not been discontinued for a specialist report. For such children the program operates as a very well-documented period of diagnostic teaching.

With daily, 30-minute lessons, individually designed and individually delivered those discontinued from the program have become independent learners within the average band of the classroom to which they belong and to be able to survive in that classroom 'with a not-noticing teacher,' a risky scenario.

The biggest surprise of the operation has been emerging year by year in these annual returns and we have again been skeptical and searched for alternative explanations. The mean percentage of children who cannot meet the stringent discontinuing criteria of average bad performance in both reading and writing is below one per cent of the birth cohort. National figures across the five years support this (Clay, 1990). Column 7 reports these low percentages of children judged by school teams not to meet the discontinuing criteria, not predicted to succeed within the average band for literacy achievement in their classrooms with a 'not noticing teacher' and referred for a specialist report and recommendations for further instructional assistance.

Each of the 10 Education Board districts produce very similar results (Table 2). These figures are not proportions: they are percentages, showing that very rarely has the percentage of children referred to specialists reached one per cent of the birth cohort.

This number could rise in the future for several reasons:

- an increasing willingness of schools to refer children as early as six and a half years, (there is a residual reluctance);
- an increasing willingness of psychological services to recognize the importance of their role in providing a second opinion at this time.
- and any fall-off in the effectiveness of program delivery or teacher training, resulting in fewer children being discontinued.

These survey data answer administrators' questions about implementation like 'Can the program make a second chance to learn available for many children while at the same time expanding to national coverage? Can quality be maintained during expansion? What organizational support is needed?'

While the data collection and analysis are not something I can take credit for, I appreciate being given permission by the Department of Education to share these data and to acknowledge the vast amount of work contributed to these surveys by many teachers and administrators.

We do have a workable program but there are always new problems to solve and new challenges to consider. What the survey demonstrates to me is that in this age group **literacy problems appear to be alterable variables** under the conditions offered in this early intervention. Australian and United States survey data on Reading Recovery tell much the

same story even though implementation and training arrangements vary somewhat from country to country.

The question has been raised with me that, if everyone becomes average or above then.... I think of acquisition of literacy as everyone getting a foundation control from which the achievement can expand. It is like getting almost everyone on to the train, and leaving almost no-one at the station. What the travellers make of the journey from then on will vary.

What Is Possible?:

A Grounded Approach to Theory and Practice.

How Reading Recovery ever became a viable program has to be considered among its current successes and possibly this is where it presents education research with some important challenges. I will refer four features of the development.

1. A Grounded Approach

Developmental psychology studies change over time in order to describe, or explain, or optimize development (Baltes, Reese and Nesselroade, 1977). Describing what occurs is a legitimate first step in an unplotted and problematic area of study in child development. One asks, 'What occurs?' and records it as best one can. There is no implication here that descriptive research is not theory driven but it uses research designs which do not test explanations. So, disenchanted with the efforts of educational psychology to solve questions of literacy failures, I turned to theory and descriptive research methods from developmental psychology to study change over time in literacy behaviours. About the same time researchers successfully turned the spotlight on intensive detailed longitudinal recording of change over time in oral language. In that area we are still searching for the causes of accumulated gain but we find the descriptions of change over time very useful.

My first study of literacy behavior. involved change over weekly intervals during the first year at school of 100 unselected children in five schools (Clay 1966, 1967, 1982), and I followed then up one and two years later. Correlations of **entry** scores with progress one year later were only of the order of 0.5 but correlations from the **end** of the first year to the end of the second and third years were as high as 0.8 to 0.9. Where children were at the end of their first year of instruction tended to be where they were one and two years later. That finding shocked me. Reading Recovery, as an early intervention, was placed at the end of the first year of school for that reason.

'Change over time' research allows one to ask questions like 'Can we see the process of learning to read going wrong during the first year at school?' and then to ask 'Can

we appeal to theory that will help us to change an unsatisfactory trajectory of progress?’

I assumed that an acceptable trajectory of change over time was that described by the original longitudinal data for children making **successful** progress. This gave us models of average and high progress, and explicit in our model of change was that we aimed to teach the poor readers to use the strategies observed in successful readers on the assumption that to be competent in literacy low achieving children would need to learn to do what good readers did. This has not been a common assumption in remedial programs.

The research literature was rich with discussion about the processing behaviors to be developed. Before standardized tests could make the distinction reliably, change over time data in literacy processing behaviours might provide reliable identification of those who needed supplementary help when the paths of progress for successful and unsuccessful readers began to deviate significantly. Also, we might be able to tell during the intervention whether change was occurring on an appropriate trajectory and adjust the intervention as necessary.

New Zealand teachers use a monitoring survey developed from my first longitudinal research to identify low achievers after the first year at school, so they can offer them more help in the classroom. When they found that they were identifying problem behaviors which they were unable to respond to, they requested more research into this problem. The Reading Recovery development project arose from that teacher request.

The early intervention was grounded in the work of teachers in schools. It arose at the request of teachers. When developed a comprehensive early intervention in an education system would have to be delivered by teachers and not specialists, if it were to get coverage and be economical. At any point in the two development years, the field trials year, and the implementation years, the important reference point for decisions was back to what could be achieved by teachers in schools. The questions were

- Can change be wrought in schools?
- For whom?
- By whom?
- And with what success?

2. Theory-building About Teaching and Learning Procedures

Theory-building about teaching and learning procedures were also grounded in field settings. The teaching procedures arose from detailed recording of good teachers teaching one-on-one. Each member of a small team of interested 'reading people' who were mostly practising teachers, taught children with literacy problems behind a one-way screen for other members of the team to observe. The team talked the teaching moves into categories of teacher-child interaction and referred anything in sight to any known theoretical discussion in the literature in 1976-1977.

Many procedures were discarded as problematic, making for slower progress than a catch-up intervention could tolerate, or because they were in conflict with other facilitating procedures or theories we were using. Behavioral data were collected in the contexts of whole tasks and the real-world of teacher knowledge, [that is, in terms of classroom practice in New Zealand at the time].

Moments of insight were rare but exhilarating. To provide one example, we discovered that separating out 'hearing sounds in spoken words' as different from calling off a letter as a sound, was extremely hard for many of our low achievers. Elkonin's research reported by John Downing (1975) was lying around waiting to be picked up and used in the service of this insight together with reports of the work of Charles Read (1975), Carol Chomsky (1978), and Liberman et al (1974). Our children needed to learn to make some important discriminations before they could even get to the more usual classroom approach to letter-sound relationships.

We got offside with the rising interest in metacognition, particularly the view that teaching children to talk about how they were performing would lead to better performance. We agreed that our very young and very inept children needed to act successfully before they could talk about how they were acting (and we could turn to the theory of Bruner to support us). We suspected that over-verbalising for our low achievers could persist to the detriment of that fluent responding which frees attention from old problems to problem-solve new challenges. Even beginning readers build direct access to a few words by fast visual processing of print and we did not wish to impede this perceptual processing which required little conscious attention. Nor did we want these low achievers to suppose that being able to comment on **how** you read was more important than **understanding** what you read.

3. Theory-building About the Reading Process

The main thrust of my research has been directed to a theory of acquiring the expertise to read and write **continuous texts**. I am interested in literacy acquisition

in all children, but I have used the same body of theory to develop alternative paths to similar outcomes for some children (i.e. those in Reading Recovery). This is consistent with my own background in normal and clinical developmental psychology.

My early research applied theories and methodologies from developmental psychology to the acquisition of reading and writing. I drew upon reading research, and a wider range of psychological and linguistic literatures. I wrote about the patterning of a highly complex, interactive system of behaviors in motor, visual perception, language and cognitive areas, behaviors which the child learns to orchestrate and draw upon appropriately while problem-solving text, strengthening with use the strategies for working successfully on texts. This theory of complex variables was clear in parts, and undefined in others, developing greater clarity as more research and observation threw up more questions. In 1976 it was not as clear in parts as it is now.

For example, for me the role of phonological awareness was not clear when we developed the program. For the New Zealand children whom I was studying it looked like an outcome of reading successfully. Always assuming that teachers would give it attention, as and when necessary during text reading, no special procedures were designed to develop it in reading. The 'hearing sounds in words' procedures which occur in **writing** in Reading Recovery have worked well. They occur in writing because that is the task in which the child has to produce print, and can go from his oral pronunciation to a search for ways to record the sounds he is making. There has been elaborate research activity on phonological awareness in the intervening years, but whether it should be learned before one reads, or could be an outcome of reading, or is learned gradually over time during reading and writing interactions is still argued over. [Obviously some reading acquisition programs consider it essential to begin with phonological information.]

At the time of developing Reading Recovery writing acquisition was an unclear area. The team believed that there is a reciprocity between what is learned in early writing and early reading, and that young readers can be encouraged to use both bodies of knowledge reciprocally. This arose from New Zealand classroom practice and a practitioner knowledge among the team that this worked. Few theoretical accounts of how and why this might be so exist in the literature even today and this is something which I regard as a contemporary challenge for some of my research students. We incorporated the analysis of the phonological aspects of Reading Recovery into the writing tasks where it was a necessary part of analyzing a word one spoke and wanted to write.

This discussion of unclear areas implies that, when Reading Recovery teachers and leaders design their interventions for individual children, **they** also work with an incomplete theory, which is more explicit in some areas than in others. Where they

lack theoretical backing they are challenged to test their practitioner assumptions about a child's learning against their records of observed behavior. They create a personal debate as they talk themselves through to the best articulation of assumption with observation. If what you think conflicts with what you see the rule is 'Don't deny what you see: you probably need to change your assumption.' Teachers look more closely, gather more data, question and test what they recognize to be 'soft ground.'

I am convinced that improvements of classroom instruction should NOT be derived from insights gleaned from what has proved useful for extreme low achievers. That is not the way to go about improving classroom programs. I go back to the general theory to work out my hypotheses for the classroom instruction of most children.

4. Individual Differences

Entrants to the program are the lowest achievers in ordinary classrooms not excluding anyone for any reason. Our observation instruments show individual differences among the children who enter the program; they are not only different in levels of scores but they are also different from one another in their areas of 'lowness.' The aspects of the complex learning that are most troublesome will therefore vary from child to child.

Each child's program would need to be different, since Reading Recovery starts with a particular child's strengths. Lessons begin with things that a child can already do and add, cumulatively, other successes. The theory has to encompass **the movement of different individuals along different paths to similar outcomes**. Why? Because this was judged to be the quickest route to success, and we needed to save learning time, not extend it. The differences would diminish over time as different children came to acquire a similar repertoire of literacy strategies, those of the successful readers.

To Explore What Is Possible...

We worked with a grounded theory driven by field possibilities and field data, with theories-in-information for both the learning and the teaching side of the intervention, and theories wide-open to working with individual differences, able to deliver different programs to different children in order to reach the same goal. There was, and is, a cyclic relationship between theory and practice at all times, and even the trainers of teachers teach children daily to maintain this contact with 'the ground.' Such interventions should collect formative data of what occurs so that not only the outcomes but various paths to those outcomes are revealed. This also allows for adjustment of the intervention as necessary, an important factor for field personnel.

My work in developmental psychology, clinical child psychology and education have been suited to this focus, and my interest is in creatively bursting out of straightjackets and exploring new possibilities. When we search for solutions to intransigent educational problems we should, with due caution, value interventions which can be produced with a grounded approach and solutions which bring knowledge together from a variety of sources. Unfortunately research designs tempt us to avoid an integrative approach, and encourage the separation of variables. Programs that originate in descriptive and development phases can ultimately be formally tested by the methods of science.

I think teaching is about the paths to outcomes even when society is obsessed with measuring only the outcomes. I see the child's correct response conveying little information to the teacher about how next to interact with the child, while the child's approximations during risk-taking provide the teacher with information she can use in teaching. I suspect that the development of innovations is hampered by too early a demand for a significant difference in the outcomes, with too little attention to the paths taken to those outcomes.

What Was Possible in Ohio?

With Reading Recovery it might be possible to mount a serious attack on early literacy problems and most educators would welcome a reduction in literacy problems in their schools. So what has been possible in USA? A brief overview of research from the Ohio program will allow discussion of the kinds of questions that can be asked. My Ohio colleagues will respond to questions about their projects. (See also Pinnell. DeFord and Lyons, 1988.)

There are programs of various sizes in 13 states; 38 sites (16 outside Ohio) with 7 new teacher leaders completing their training this year. The program is monitored by local administrators who require local data on the work at these sites; and involvement of most of these sites in Federal support from the National Diffusion network results in random sampling of individual children's progress records for collation each year.

As educational programs are not known to transfer easily from one education context to another, one can understand the doubts people had about a cultural import from another country like New Zealand, and rightly so. The answers obtained in New Zealand fly in the face of professional wisdom based on vast academic and practical experience, so these questions tend to be posed anew in each new implementation. Would the program work with teachers, children and education systems in USA and in different parts of USA?

USA educators repeated the original questions and asked 'What can low achievers in literacy come to achieve? What is possible?' The short answer is that the program seems to be working in much the same way with much the same results in New Zealand, Australia, Canada and USA. It is too early to see what the significance of any variations are.

1. What is the evidence that a child learns?

a) Individual child data records progress daily.

Teachers keep daily lesson records of the processing behaviors of each pupil. These records provide a detailed memory of the path of progress which guides the teacher's teaching.

Lesson Plan OH

They also record each week the hardest text level read that week at or above 90 percent accuracy after one teaching exposure on the previous day. This is not done as a test of performance but rather a record of the trajectory of progress which might also lead the teacher to formatively shift a program emphasis.

Text Level Graph

They also list all new words written independently in writing during a week, from their daily records of what the child has come to control independently.

Text Level Graph

They also list all new words written independently in writing during a week, from their daily records of what the child has come to control independently.

Writing Vocabulary Record

Comparison of individual children's responding early and late in the program can be drawn from such records, and Ohio research reports and published papers usually contain case study data of this kind. Change over time data over any period of the individual's learning in any of the processing behaviours that teachers record can be accessed.

Early and late records

The detail of the child's path of progress is at the teacher's fingertips to contribute to her decision-making but it can also be 'read' by other professionals.

Details of individual data were reported in the first research reports from New Zealand, Australia and USA, to strengthen the evidence of change occurring at a time when the program seemed to be producing silly answers to our questions.

b) Entry, Exit and Follow-up Tests of Processing

Each child completes tests in six component behaviors of both reading and writing. These record change in terms of the program's theories of text reading, word reading, letter identification, concepts about print, writing vocabulary, and dictation. As comprehension is the focus of all text reading and lesson activities this is evaluated during teacher and child talk about each of six to eight texts read each lesson and no separate assessment is made.

c) Two External Reference Points

Each child's performance is also checked against two external reference points, 1) one or more national normative assessment and 2) the level of texts used in the schools read with 90% accuracy or above.

The detail of where each individual child begins, how that child's performance changes during the program, where they were at discontinuing and at follow-up testing (if this is available) contributes to further planning and placement of that child. They provide single-subject case studies for every child; prediction of progress and decision-making is at the level of the individual on the basis of individual data with external and group reference points. Group data on discontinued children in any of the research studies merely averages outcomes across children for reporting purposes but **every discontinued child reached the outcome criterion**. High percentages of individuals take this path with monotonous regularity. We are not reliant on the logic of group averages to predict change in individuals. This is checked for each child in lesson records, by tests in six sub-components, by at least two external reference points, and by successful coping with the class placement following discontinuing.

2.) What criteria are used for entry and for discontinuing?

a) Entry to the program

The criteria are relative not absolute. Places go to those children in the reference group who are the lowest achievers in the class or school on the entry test profiles not excluding any child for any reason, and always starting with the lowest of the lowest

achievers. The percentage of children served depends upon the resourcing of the program and is a decision of the education system.

[There is little empirical evidence to support the belief that different categories of at-risk children can be identified reliably as different from one another (Rutter and Yule, 1977; Allington and Johnson, 1986).]

There are four real-world advantages to Reading Recovery criteria.

- Firstly, they can be used by teachers.
- Secondly, judging the extreme cases is more likely to be reliable.
- Thirdly, the program can begin with resourcing a small percentage and expand as administrators determine.
- There is also an equity advantage. Many children struggle with literacy learning who do not fit the social or poverty criteria of Chapter 1. Reading Recovery criteria allows them to be included.

Note that the criteria are so different from the required Chapter 1 criteria of a) social need and b) delivery to the lowest xx percent that direct comparisons of the two programs are extremely difficult to design.

b) When the program is discontinued

A prevention program will be judged

- a) by its rates of removing the problem and
- b) by survival without further problems.

Discontinuing or outcome criteria were set high - to have the children participating successfully within the average band of literacy instruction in their classroom, able to do what the teacher of that class demanded of them. They need to be able to perform with relative independence of a not-noticing teacher, because the reality of classrooms is that most of the time the teacher is not-noticing of individual responses. If the child can work within the average band of his class group he is likely to sustain the gains made during the intervention, providing this performance has been underpinned by development of independent processing strategies at the time of discontinuing.

Therefore there are two sides to a discontinuing decision, one determined by the teacher's understanding of processing strategies used by a successful reader and writer at this age level, and the other a context evaluation, for each child, of what competencies will be needed to work at average levels back in a particular classroom. These criteria are sensitive to an individual's placement and survival.

3. A critical reviewer asked 'Who determines the average band performance?'

a) In a school program the Reading Recovery staff team for that school, make this decision on the basis of a **process** and a **context** evaluation as described above.

b) In research studies two approaches have been used.

- i) Assessment of the average performance of **all** the children in the classes in the research study, those who did and did not need the program. This includes everybody's improvement over the year and again reflects the real world of the particular classroom of the individual child.
- ii) A comparison with a Random Average group defined by distance from the mean scores on Reading Recovery tests of a Random Sample of first grade students plus or minus 0.5 standard deviation units. There is a question of whether this group should or should not include Reading Recovery children (Pinnell, DeFord and Lyons, 1988)

Comparison with national norms on standardised tests or NCE units is important information which was collected but which cannot be used as discontinuing criteria for many reasons.

- It ignores local school conditions and teacher effects within a classroom.
- It also ignores the fact that such tests are known to be poor measurement instruments for very low achievers at this age at entry to the program.
- the mean score on a standardized test might require the lowest achievers to reach levels higher than the highest achievers in a school system which had low achievement.

This does not make sense for the individual to survive in the real world of classrooms, although it might well be the preferred criterion for many evaluation research projects.

4. What proportion of those who enter are discontinued?

Any proportion of children 'recovered' is a gain, but cost-effectiveness is more likely if a majority of the students are lifted out of the special needs category with consequent savings on further special programs. A high rate of success is important

for an educational program which demands a high investment of teacher time. We look at the percentage of Reading Recovery children who have been discontinued to criterion levels at the end of the school year.

For the Ohio State sites in 1986-1987 and 1987-88 between 67 to 95 percent met these criteria, varying with the characteristics of the intake populations, the proportion of low achievers reached, the effectiveness of the training and support of teachers, and the efficiency of the implementation.

5. Acceleration: How fast did the discontinued children move relative to children who did not need the program?

Children who have made slow progress in their first year at school **must learn at accelerated rates while on the program** and learning will decelerate to average rates back in the classroom. This is the recovery trajectory that is required. Cost-effectiveness depends on a rapid recovery time, and catching up to normal progress classmates who continue to make average progress was a critical factor in the feasibility of the program.

It is important to capture accelerated rates of progress exceeding those of successful readers. Gain scores and rates of progress are tricky things to work with and devilish things to report to educators without being misunderstood. Every monitoring research project has looked at the question of acceleration or learning rate by selecting as a contrast group all the other children in the same classes with the same teacher and the same classroom program to capture this change of learning rate.

The most informative research data on acceleration is found in the Bendigo programme in Victoria, Australia. For each of six outcome measures they provide data represented on graphs like this.

[This record results for children who did not need the program, an average for all children combined, four time series points for the discontinued children starting with a no-intervention phase, and ending with a back-in-classroom phase. In addition there are three data points for a group of children who entered the program later in the year and then showed the same shift in progress trajectory.]

As the report does not provide all the individual scores we do not have a series of single-subject case studies of the vector change during time on program. And although the children with incomplete programs did complete their programs in the subsequent year we are not given data on this. So we do not have a true multiple baseline study. It points the way to a further study of acceleration and deceleration

with better research documentation than the original New Zealand and early Ohio studies achieved because the path of progress prior to entry to the program was not recorded.

6. Can the effect be replicated?

Monotonously so. The program effects have been replicated with children, with teachers, in varied settings, in systems using teachers with very different prior experience, and with children from very different cultural backgrounds. The consistency is notable. (Ohio sites comparison table)

7. Can the effect be sustained? in the year of treatment, the first follow-up year and the third follow-up year?

For many children this program will be sufficient to ensure that they are able to progress to competent reading and writing skills through third grade. (Research results from small studies in New Zealand and USA support this.

Should we be interested in longer-term follow-up? Here both my knowledge of education systems and my developmental psychology say 'No!'. I think we should be surprised that we can get sustained gains after three years. In our follow-up studies, looking at individual progress one can see the effects of school variables like several changes of teachers, or a placement in a different class, or personal life circumstances, or sickness or a cluster of intervening variables placing steady progress at risk. These increase with distance from the intervention.

8) How did an independent evaluation panel view the Ohio program?

The State Department of Education in Ohio commissioned a National Evaluation Panel of out-of-state experts to evaluate the program in operation and its research reports. The role of the National Evaluation Panel has been to verify the methods, measures, data and conclusions of the Ohio Project staff. I have had access to their short report.

The panel concluded that

- between 70% and 85% of the Ohio children in the bottom fifth of their first grade classes learn to read (not and write) and are discontinued when they receive Reading Recovery.

- Small, controlled studies suggest that Reading Recovery produces substantial gains on a variety of measures of reading and writing.
- Thereafter, the majority of discontinued Reading Recovery children in Ohio appear to make average or above progress within their first grade classes.
- Although only a few Ohio children have been followed, the gains produced by Reading Recovery appear to persist into the second and third grade.
- The costs of Reading Recovery are high in the first year, but there is reason to suppose that cost effectiveness and cost/benefit ratios will prove to be favorable in the long run.
- Reading Recovery deserves the continued support of Ohio educators and citizens.
- But, a comprehensive, controlled study of Reading Recovery in Ohio is needed.

9. Could the training of teachers be shorter?

I have not said anything about the excitement which the program generates in teachers. You will find in most of the Ohio studies useful attempts to evaluate how teachers and parents saw the program. There is another story about empowering teachers yet to be written.

The National Evaluation Panel for the Ohio project believed 'that intensive teacher training was an essential feature of Reading Recovery and thought that the program would achieve less favorable results if teacher training were attenuated.'

There are five programs for training teacher-leaders in USA, one in New Zealand, and one in Australia. Any expansion will involve important decisions about how to generate more trainers of teacher-leaders, because that is where considerable pressure is about to arise in USA. This third level of expertise does not arise naturally from being an experienced teacher-leader. At all levels **the magic is not in the teaching procedures**; it is in the decision-making on individual programming made by well-trained professional staff.

In Summary, The individual progress data shows that most of the lowest achievers in First Grade do not have to have continuing literacy problems. **Our practices and policies need to change because a different scenario from the failures of the past is possible.** If the goal is to reduce the risk of producing literacy problems then

Reading Recovery is one current tool which can do this somewhat consistently for the individual case and with three years of lasting effects.

Schools should recognize that Ex-Reading Recovery children need good schooling and a manageable out of school world to keep their gains. They should support the child's continued progress by minimizing such risk factors. Typically, upper elementary teachers have no idea that a child discontinued from Reading Recovery ever needed extra help. I cannot decide whether this loss of memory on the part of the school is good or bad.

So what is possible? What for example would be the effect of replacing a retention polity with an early intervention policy at kindergarten and First grade level?

Some Challenges For Further Research

1. The ethical issue

My ethical argument that if a treatment is known to be working one has no right to withhold it from a control group, was said by critical reviewer not to apply because thus far, RR has not been shown to be efficacious. That depends on whether one limits oneself to the scientific test of the experiment in reaching one's ethical judgements, or as a clinician one is satisfied by the predictability of individual success. By the criteria of clinical appraisal backed by daily records Reading Recovery knows exactly who changes and when at the level of individuals, and future research cannot avoid the ethical issue.

2. The claim that there is no evidence that treatment works.

In 1985 Gittleman published a three page report of the evidence of the effectiveness of remedial reading interventions shown by random assignment experimental/control group studies. Although there is an enormous industry of interventions out there in the real world achieving some improvements in literacy performance of individuals, her conclusion makes dismal reading.

... though many children suffer from reading disorders, and though a great many treatment programs have been suggested, the evidence for their efficacy is, at best, limited and for the most part totally lacking.

As her conclusion arises from the handful of controlled studies she found, perhaps part of the problem is that the designs of evaluation research are failing to capture what intervention programs do achieve.

3) Sound implementation will underpin more effective evaluative research

Note the reciprocity. A good research evaluation needs a sound and stable implementation to work in; that implementation has contextual needs that must be respected in the research design.

a) System Effects

In New Zealand I have hoped for a chance to see the ten year outcome for the education system. As that becomes a possibility I am now beginning to wish to see the fifteen year effect. It takes a long time for an early intervention at six years to show its long-term outcomes for the system.

The next challenge in USA is to get some of the existing programs to education system level and monitor the effects on the education system as a whole. From a report on State Governors' policies I know of one state working on this, another proposing this policy and a third investigating state commitment.

b) Cost-effectiveness.

A cost-effectiveness study should be done, preferably in a system where the program is well-developed and fully implemented, but it should answer the questions of administrators about costs and benefits, and not be a scientist's test of explanation in disguise.

Individual instruction must be expensive, goes the argument. But failure in literacy is very costly in retention and transition and special programs, and costly to society in other social problems. Reading Recovery calls for a temporary unit to make subsequent funding unnecessary.

c) Incomplete programs

In research evaluations children who have had a full treatment should always be separated from children who have had a partial program, however this is defined by the particular school system.

Too little concern has been shown in the USA programs for children who have not finished their programs at the end of the school year. I hear little reference to how their programs might be completed. The calendar should not determine the resources offered to the children; that should be determined by their learning needs. A treatment for an individual should not end because we ran out of school year.

Such a policy negates one very important preventive purpose of the program in my country, which is to identify children who cannot be discontinued at average levels and refer them to appropriate specialists. The program becomes one of the referral routes to get such children to the services they need early. The details of a referred child's Reading recovery records are full of information for the specialist who then sees that child.

4. The preventive model; A conceptual issue

Let me return to the issue of treating children who might not have needed the program. Critics have claimed that many children who score poorly on reading tests may still turn out to be good readers (Shanahan (1986), Nicholson (1989). They claim that one can predict this from imperfect correlations across time in total populations of young children.

a) Tests at this level have not been satisfactory measurement instruments, but we use measuring instruments that are reliable for the age group, measuring current literacy performance on a variety of assessments;

b) The prediction may be true if a wide achievement distribution is used but the critics' need to demonstrate that their claim holds when selection is from an extreme group and after a year of good instruction because among them spontaneous recovery is rare.

Using a prevention model to minimize unnecessary treatments Reading Recovery has followed a year of good instruction, and started at a point where the correlations of early and late progress begin to increase.

Should educators do nothing so that those who are going to succeed alone do? What about the consequential error of not identifying children who need help? Which is the error which concerns educators most? Overlooking children who subsequently fail or including children who could have made it on their own? Administrators searching for more effective policies for reducing literacy problems in their schools do not ask whether they might have done it alone.

In a system implementation the issue of whether a program will continue to be supported becomes important. Which of the two types of error threatens the program? the unnecessary successes? or the unnecessary failures? But that is a pragmatic issue, not a scientific one, isn't it?

5. Research on Reading Recovery instruction: The urge to simplify the complex

The separate components of Reading Recovery are not tested by the research I have reported. Each can, however, be related and embedded in a large body of recent research on reading, and could be tested more rigorously in some other way.

Which component in the instruction is the 'crucial' one? Many people want to ask this question. The model of reading and writing acquisition is a complex one, and many variables of normal instruction have been changed. Experts in the field, observing the instruction, are prone to 'see' one aspect of the program as the 'crucial' one. It has been called an excellent 'phonics' program but it teaches no phonics. It has been called a whole language program but is seen to have some annoyingly analytic facets like close monitoring of shifts up a gradient of text difficulty. Some researchers have totally ignored the writing side of the program and left it out of their evaluation, to the astonishment of Reading Recovery professionals.

It is conceivable that the children change a) **because** all these subcomponents are part of the instruction and b) **because** children are required to orchestrate a wide repertoire of strategies for problem-solving novel texts, and c) **because** the direction of change which the teacher expects to see is towards new processing strategies which arise out of the early processing strategies. I struggle with the causative logic that applies to cannibalized processes.

6. Competing Programs

There was and is no competing program in New Zealand or Australia at this level other than teacher attention in a classroom program. The first research designs mapped progress against classroom progress because the competing claim was that children would be best served at this level by the classroom programme.

One question arises in USA in two guises. 'Which of two programs gives better outcomes?' and 'Which of two programs gives the best value for money?' I like to see these clearly distinguished. Two real world sources are possible.

Slavin (1987) reviewed what works in Chapter 1 in USA, and concluded that preventive tutoring programs are probably the most effective programs. These typically produce substantial gains in reading (there is no interest in writing) by the end of the first grade and in a few studies these have been sustained at least through the end of second grade. He identified Reading Recovery as one of four studies found in this group.

Other competing programs also found in Chapter 1 could compare small group teaching with individual tutoring. Research would need to consider the equivalence of the intake populations, and the differences in teaching training, the follow-up outcomes, and, again, the writing achievements for fair comparisons of the programs.

6. Cautions with experimental designs and control group studies: A high risk of oversimplification.

An independent research team would need to consult to avoid problems of simplifying a complex program. This could occur to meet the needs of the research design, and/or because the outside, independent researcher has too little knowledge of the subtleties and complexities of the program. It could affect

- a) the questions posed
- b) measurement aspects of the research
- c) the teaching
- d) the delivery system, particularly changing it to fit the research design,
- e) or the assignment of children to outcome categories.

Until we had a number of such studies across several systems we could not tell whether failure to was in some sense a function of the context (the educational system) in which the experiment was carried out.

My Current Research

The policy agenda in New Zealand is with the referred children. What are the characteristics of the children who are not ready to be discontinued after 20 weeks and who are referred for special reports and further special teaching? It is a question now of how to improve the performance of these children even if they are a small group. What more can we do for them?

This is the subject of my present research project in New Zealand which asks questions like

- What were their entry characteristics?
- What were their responses to teaching?
- How did the trajectory of their progress differ from successful Reading Recovery children?
- How were their programs different from those of successful Reading Recovery children?
- Should we give them longer in the program than the arbitrary 20 weeks? If so what happens?

The steady, if slow, improvements in literacy learning of these children have never been credited to Reading Recovery in our past analyses which concentrated on rates at which children reached criterion levels of performance.

New procedures. It is critical that as our general theory of literacy acquisition in all children develops the implications for the low achievers, and for the Reading Recovery teaching procedures will need to be monitored, and if appropriate, changed so that they continue to be as productive as possible. As the real world changes we may need to do different things. Reading Recovery may only be a current tool by which this can be achieved. Perhaps there is an infinite number of programs which might achieve the same ends. A new advocacy should be tested against the procedures which currently achieve results.

Despite the success of this program let me assure you that the gains are hard-won. This work calls for tremendous teaching and learning effort, and depends on the quality of teacher decision-making. Put the emphasis on the wrong aspect of the program and the acceleration will disappear. The target population is very hard to teach.

NOTE

For the majority of children a good classroom programme is adequate to get them started in reading and writing. However, children differ widely and in any school system, regardless of the teaching methods used, a small proportion of children do not make satisfactory progress. The concept of the Reading Recovery programme was developed by an educator and psychologist in New Zealand, Marie Clay, and research carried out there, and in Australia and Ohio, USA supports the claim that children who have participated in this early individually delivered programme are still maintaining their progress three years later. Australian teachers from Victoria and Canberra were trained as teacher leaders in New Zealand, and Marie Clay and Barbara Watson went to Ohio State University to help with the setting up of the first training course for teacher leaders in USA. From there the programme has spread with tutor training in Australia beginning in 1987 and other training sites in USA in New York, Illinois, Portland, and Denton, Texas in 1990.

At each school where the Reading Recovery program is run, the bottom level of the reading achievers receive specialized individual instruction for half an hour each day. The Reading Recovery programme aims to enable these children to catch up to their age mates so that they are able to cope well in average band of the classroom. Children receive daily individual teaching in addition to their classroom instruction. They have a wide range of problems with learning so specially trained teachers select from a range of techniques the ones that are suitable for a particular child. Most children make rapid progress with this daily support and are able to reach the average reading skill of their age group within three to five months.

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TABLE 1: STATUS OF CHILDREN LEAVING READING RECOVERY OVER FIVE YEARS IN NEW ZEALAND: NUMBERS AND PERCENTAGES

Year	Birth Cohort	In R-R N	Full R-R N	Incomplete N	Left R-R N	Refer On N
	1	2	3	4	5	6
1984	49574	3200	2036	867	176	128
1985	51211*	5323	3093	1615	357	238
1986	49044	7468	4536	2097	475	360
1987	49789	9240	5904	2509	512	313
1988	49482	10511	6494	2976	648	390
	%	%	%	%	%	%
1984	100	6.45	4.11	1.75	0.35	0.26
1985	100	10.39	6.04	3.15	0.70	0.46
1986	100	15.23	9.25	4.27	0.96	0.73
1987	100	18.56	11.86	5.04	1.03	0.63
1988	100	21.24	13.12	6.01	1.31	0.80

* 1984 six year old population

Figures in the top half of Table 1 are those given in the End Of Year Summary Tables of the Department of Education.

TABLE 2: CHILDREN REFERRED FOR FURTHER HELP AS A PERCENTAGE OF THE DISTRICT BIRTH COHORT: 50 RETURNS FROM 10 NZ EDUCATION BOARDS, 1984-88

	1	2	3	4	5	6	7	8	9	10
1984	.21	.27	.59	.27	.57	.68	.03	.91	.80	.77
1985	.44	.32	.33	.32	.08	.52	.30	.44	.54	.51
1986	1.03	.78	1.09	.71	.91	.11	1.20	.47	.76	.55
1987	.74	.76	.95	.55	.57	.23	1.45	.47	.53	.43
1988	.99	.95	.75	1.09	.83	.36	.60	.57	.72	.40

Derived from the End of year Summary tables of the Department of Education.